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AMERICAN VETERINARY REVIEW,

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ORIGINAL ARTICLES.

ATROPHY OF THE PLANTAR CUSHION.

By G. Chenier. Translated by A. Liautard, M.D., V.S.

(*Continued from page* 370.)

3d. Can the dry condition of the horn be considered as the cause of hoof-bound? If facts are superficially looked at, the importance of this influence seems to be evident; but if they are scrutinized without preconceived ideas, it is easy to see that there exists in it only a simple coincidence. Let us try to prove it.

At first one must remember that the layers of horn are more dense and consistent, as they are more superficial. Mr. Goyau says: "Nature has made with the same substance a soft envelope for the living tissues and a hard external covering, essential and necessary for the connections of the foot with the ground." These qualities of the horn were indeed necessary, so as to allow the hoof its double duty—hardness and consistency on the surface, to

resist the injuring action of external agents; suppleness in its deep layers, to establish a transition and avoid painful compression of living tissues. Such ought to be and such are indeed the physical properties of the horn.

If the horn is superficially more or less dry, one must not conclude that *a priori* it has lost its watery element. It may be very dry on the surface and possess all its suppleness in its deep parts. Let us add that if this circumstance is not always the same, it is due not to an hygrometric condition changed by external causes, but we believe, on the contrary, to a keratogenesis more or less abundant.

In admitting that "the element which keeps up the suppleness of the horn," had a natural tendency to evaporate, a fact which is doubtful, would it be a reason to conclude that this cause is by itself alone sufficient to bring on hoof-bound? No; for if it was so, this disease would be more common in common horses. And we know, on the contrary, that if it is frequent in some classes of horses, it is principally amongst private horses or of luxury, or in those whose hoofs are almost daily covered with greasy ointments to prevent their dessication.

What we say for hoof-bound proper, we could repeat for the symptomatic quarter-crack. In the majority of writings upon this subject, it is said that the dry condition of the horn is one of the principal causes. If such were the case, rather than to appear as in a select spot, in parts closed to the coronary band, it would first show itself near the plantar regions, where the horn is deprived of its natural varnish by external agents, by the rasp of the shoer, and where consequently it is more exposed to lose its watery element.

To prove the influence of the dryness of the horn in the production of hoof-bound, many arguments were advanced. 1st. The curative influence of a thick and damp bedding, or of one made of fine damp sand, or of damp clay, was brought forward. But this influence is easy to explain without the assistance of the influence of humidity. In those conditions the frog touches at rest, and the plantar cushion may, to a certain extent, recuperate its vitality.

2d. The hind feet were then taken as examples. It was said that the proof of the influence of the dessication of the hoof in hoof-bound, was that in the hind feet, which, instead of being like the front ones, standing on a dry bedding, remain upon a constantly damp litter, this disease was seldom seen. To this we will answer that if the front feet are more commonly affected, it is due to a special predisposing condition of the former which is inherent to their physiological functions. And, besides, we all know that the concavity of the hind feet is "often filled up with manure more or less diluted," so that the frog again is allowed to come at rest, and the plantar surface is placed in its normal condition.

The particular condition of dampness of the hind feet, however, does not exempt them from becoming hoof-bound. I know a horse which had an acute arthritis of the left hock, and three weeks after the onset of the disease the corresponding foot was very much hoof-bound. The stallion Bashi-Bazou, of the national stud farms, is so much hoof-bound behind that these feet have often been affected with quarter-cracks. M. Lafosse, in his *Veterinary Pathology*, mentions a case of hoof-bound forward and behind.

Where is the veterinarian, having several years of practice, who has not observed a fact analagous to the following: A horse is very lame on one front leg; he is put loose in a box-stall with a good bedding; the corresponding foot is placed in the same condition of dampness as the congener—we might add, as the hind feet, and still, after a month or six weeks from the appearance of the lameness, this foot has become hoof-bound, sometimes to such an extent that the internal heel overlaps the external. We must then acknowledge that the hygrometric condition of the horn has nothing to do with this diseased process, and that this deformity is due to a want of pressure at rest in the lame leg.

3d. The following facts were also taken up: When a hoof is exposed to the sun after it has been separated of all its contents by maceration, it becomes by dessication narrower in its transversal diameter; and if so contracted it is placed in water, it resumes by degrees its normal size. Here again, an illusion, or rather a wrong interpretation. We do not deny the changes

which take place in the shape and dimensions of the hoof, separated from the foot, by consecutive dessication and immersion; but if the deductions of M. Lafosse were logical, truly the best means to restore the hoof-bound foot to its normal dimensions would be by the use of daily, long foot baths. We do not know that the hydrotherapic method has yet been successfully employed in the treatment of this disease.

We challenge the contraction *post mortem* as means of comparison, because observations and experiments made upon the cadaver have only a relative value if compared to living facts. And we are surprised that M. Lafosse, who took the phenomena to prove (?) the influence of the dessication of the horn in the production of the hoof-bound, had forgotten the wise reflections he wrote some time after: "To discover the laws of nature," said he, "one must reproduce the facts of their actions in the same condition as she presents them herself."

To resume, it is possible that the want of external dampness, may act as assistant cause, in the genesis of hoof-bound; but we will nevertheless conclude that its action has been considerably exaggerated.*

4th. What other influences were not invoked? For this disease, as for any others, every author has judged proper to have a different cause of his own? Even the mode of feeding has been made use of. We find in some of our school notes, "The nature of food has a certain influence in the development of hoof-bound. It has been noticed that animals fed exclusively on dry food are more exposed to it than those who were fed on grass. The influence of grass is manifest upon all tissues. It softens the hoof. This may be the reason why it is more common in south bred animals, who are mostly fed on dry food." Again, M. Lafosse says: "Grass, in the stable, helps hoof-bound animals, and sometimes cures them. On the contrary, a dry, rich food, oats, predispose the feet to contract and stimulate hoof-bound."

The other causes, such as the influence of emigration, of warm

* If hoof-bound was the effect of a natural tendency of the wall to contraction, this would be more common on the thickest side, the external; and generally it is the contrary which happens.

shoeing, of excessive fitting of the shoes, of high actions, &c., are of little importance, and will be mentioned only for order.

5th. But that which for many, has contributed to keep the idea of primordiality of the contraction of the foot, is the lameness which follows it. It has been so much believed that in hoof-bound, the lameness was due to the pressure of the intra horny tissues, and specially of the fibro-elastic apparatus of the foot, that the name of the disease is made out from it.* If, however, the lameness was due to the compression of the intra horny tissues, this lameness ought to increase instead of diminishing by exercise; as it is then that the blood flows in greater quantity.

Again, it is not illogical to admit that the pain and consequently the lameness may exist without pressure of the living tissues. Besides the changes of connections that the atrophied plantar cushion brings on amongst the organs situated in the posterior region of the hoof, especially if the contraction is more marked on one side, the internal, as generally the case, this organ becomes more dense, more compact, more tenacious, almost entirely fibrous, and, as says M. Bouley, it is no longer susceptible to perform its physiological functions. Becoming fibrous, it loses its suppleness, and becomes, therefore, unfit for the office of pad for amortizement; its connections with the velvety tissue are then more sensitive, more painful; its secretion is altered, diminished; hence the atrophy of the frog.

The terminal expansion of the perforaus resting no longer upon an elastic pad, cannot any more receive the pressure of the navicular bone, without manifest pain; it is for this reason that the lame leg is carried forward as much as possible to relieve itself. Coming out of the stable, the animal hesitates, advances with short paces, straightens the phalangeal axis, to throw the rest, as much as possible, upon the os pedis. It is only when repeated pressures, have, so to say, removed the sensibility of the painful tissues, and especially of the plantar aponeurosis, that the lameness diminishes and sometimes even disappears. Such is the animal chafed by the collar: at first he hesitates, but soon warming

* Encastelure, from *in a castellum*.

up, the local pain diminishes and soon disappears, and the pressure on the collar is then made as if there was no chafing underneath.

6th. The opinion that the best way to cure this disease was the use of the *Desencasteleur*,* has also been the means to give strength to the theory of the coercion of the intra horny tissues. Personally, we never have had recourse to this operation, and therefore are unable to speak knowingly about it. If, however, we believe the reports of others, they are far from being marvelous. Many authors dislike it. M. Goyau says: "The artificial dilation of the foot is now fashionable. This organ, which for years had by degrees become narrow, atrophied, is now dilated in a few months, and by violent means repulsive to nature. It is often followed by lacerations which give rise to severe lameness. Often the results obtained artificially are only temporary; left to itself the foot soon returns to the narrow condition as quick as it was dilated—this state of atrophy being now its normal condition." If such are the effects of what has been called "the first discovery of modern surgery," they are not brilliant.

It is true that examples have been given which seemed to prove the efficacy of this mechanical dilatation (opening of the heels). But are they truly due to the opening by force of the heels. Could not other influences produce them? Could not the lesion produced by the separation of the horns from the living tissues have produced a greater flow of blood, giving rise to an increased vitality in the plantar cushion? No matter, we are not disposed to believe in this curative treatment, as we have not seen it successful except in the hands of few *privilegiés*.

Even some of its partisans notice its failures. Speaking of the operation by Jarrier's mode, M. Bouley says: "Often, when the instrument has been used with a great deal of care, the animals seem not to suffer; even in some cases their gait is freer. But it sometimes happens that they suffer excessively, and become very lame." Of the same operation, M. Lafosse says: "The soreness or pain produced by this method is manifest immediately after the animal is shod, or after a short walk. It

* An instrument to produce the dilatation of the foot by force.

subsides in a few hours unless it manifests itself by a very severe lameness.

If hoof-hound was merely a shutting up of the sensible tissues of the foot by the contractions of the wall, it would seem that relief would follow the slightest dilatation. But it is not so, and even more, this may be followed by severe lameness.

The immediate appearance of the lameness, or its increased state after artificial dilatation, is not surprising. Intimately united to the sub horny tissues, the wall cannot be separated from them without tearing, laceration of soft tissues or separation of the laminæ.

Let me also say that often the contraction is unilateral, and that by the use of the *desencasteleur*, both heels, the diseased as well as the healthy, are open. Is not that sufficient to show the irrationality of this therapeutic ?

To resume, if by the mechanical dilatation, a few satisfactory results were obtained, seen by credulous eyes, it is certain that the deceptions outnumber them greatly. It is not surprising that, starting from a false part, negative results or failure were reached. To restitute to the foot, as much as possible, its normal conditions of rest, such is the unique object to be obtained when treating hoof-bound. And if by this means satisfactory permanent results are reached, our opinion upon the nature of the atrophy of the plantar cushions is fully confirmed.

In looking over the dissertations of many veterinary authors upon this subject of hoof-bound, we see that generally they have come to the conclusion that the therapeutic mode likely to bring the most favorable results was to palce the animal in such condition that the frog could participate to the pressure at rest. See what M. Goyau says after speaking of the forced dilatation : " To cure contracted feet, other means are more efficacious. Some are imitations of nature. A long sojourn iu a marshy ground, or in a box stall with damp floor, is always beneficial, when first the foot has been well pared down. The results are serious, quick and lasting ; but the horse is laid up long, and cannot be used. Work on soft ground, with a light shoe, allow-

ing the contact of the foot with the damp ground, gives also very favorable results."

M. Weber writes: "When I treat contraction of both heels I have the foot well pared, the heels and barres lowered away, and the frog remaining perfectly intact. I make a fissure on the wall at the outer and inner toe, and another between this and the heel at equal distance. I put on a bar shoe, and arrange everything *to have it resting upon the frog.* When this organ is well developed, it is an easy thing to do; but if it is atrophied, I add to the bar of the shoe pieces of leather. * * * It is important to have the animal do slow work. * * * *"

M. Meguin, speaking of the advantages of the Charlier's shoe, which more than any other "allows to the foot all its integrity, specially in its inferior and posterior parts," insists upon the excellent results obtained by the use of the short branch shoe. "* * * * It is the best means at our disposition to treat contraction of the feet. Thus the heels and frog, left entire, and brought in contact with the ground, regain by exercise, by a rational gymnastic, their strength and their size." * * *

M. Lafosse says, that if the unilateral shoe of Turner "has given some good results, it is only because its author recommended the conservation of the frog and of the bars so as to keep them strong and resisting."

We have obtained numerous cures by throwing upon the frog, through the medium of the bar shoe alone or combined with gutta-percha, in the treatment of contraction, simple or complicated with quarter-crack, corn, &c., and our results in treating hoof-bound, well developed, have so far proved very satisfactory.

To resume once more, we will say that the plantar cushion becomes atrophied when it ceases to receive the entire sum of the pressions it receives in a physiological condition, and that the atrophy has for direct and logical consequence, the contraction of the corresponding regions of the wall, the change of the direction of the branches of the sole and of the atrophy of the frog—all lesions which together constitute what is called hoof-bound (encastelure).

(*To be continued*).

A NATIONAL BOARD OF HEALTH.

By F. S. Billings, M.V., of Boston, Mass.

We have been for a long time at work on a series of papers which it is intended to betitle "The Sick Man and How to Cure Him," or the medical institutions of the United States critically considered; the request of a friend, however, to write something with reference to a "National Board of Health" necessitates that the material on hand for such a subject be moulded together in rather a hasty form, yet we trust we have in the following pages touched on subjects enough to at least give others subjects of attack and consideration, for it is only by much interchange of thought and experience that we can arrive at results liable to be of lasting benefit to the nation. That we need a National Board of Health is self-evident, and it will also be self-evident that in so short a paper as the following the work of the same, its organization, etc., can only be very cursorily treated. For in a National Board of Health must be organization, regulation, reformation and incentive. No good work can come to pass except as the result of enduring organized effort. Many of our States are still without effective Boards of Health, and in only one—Massachusetts—have we anything like legal medical officers; but even in that State their duties are too limited, being that of replacing that useless inheritance from England, the Coronor. This is an immense advance, and one which should be followed at the earliest possible moment in every other State; it simplifies and renders the work much more effective. Centralized, *i. e.*, concentrated effort, is always better than isolated, sporodic endeavor. To this end it is necessary that the whole country becomes subjected to one code of hygienic law, suitable to the general needs, while in every State, county, town or city, such special laws must be made, and one made in general, suitable to the local evils; yet these special laws and regulations should always bear a proper relation to the general. It is the drafting of the latter which will devolve

more particularly on the National Board. Once having properly drafted laws and regulations, the next thing is their execution; this will be the *regulative* work of the National Board, but this word covers an immense deal of territory. To regulation the first essential is properly educated regulators—by that we mean sub-boards and sub-officers. In this regard we have yet to form in our country an entirely new, yes, two new police organizations, both in connection with hygiene, the one medical, the other veterinary. The latter we will not at present discuss. One of the best suggestions in the memorial in question, is that the health officers shall be subjected to an appropriate examination. In this regard there must be a very sharp distinction between the technical health officer, an M.D., and the executive police. It will mark a grand day in the progress of American medicine when in each State we have the requisite number of competently educated "Kreis-physici," who shall be men, as in Germany, passing especial examinations in forensic medicine, and especially with reference to the invasion's-diseases. Such positions should be the point of ambition towards which our rising men should look. These positions should be worth, according to locality and responsibility, the sum of $1,000 to $3,000 each, said sum to be paid in part, to be fixed by law, by the State, and in part by the locality in question. Such men, as in Germany, should also be allowed to practice, but if in given cases the duties were so arduous that no time could be given to practice, except at the neglect of more important public work, then, in such cases, the official M.D. should receive pay from the State and local treasury combined, equal to an income derived by the best average practitioners in same locality. One absolute qualification which all such men must have, or they are useless, is, that they be at home in foreign medical literature, and still more absolutely "au fait" in all methods of pathological and ætiological experiment. It should be positively demanded, and introduced in an examination, that such officers be "gervaudt" in the various methods of fungi-culture, and able to diagnosticate the various microscopic fungi now playing such a hypothetic role in the genetic theories with reference to the "Invasion's Kraukheiten." Another very essential qualification such

men should have is the knowledge of the actual working of hygienic boards in other countries. We should therefore have a National Board of Health in connection with State boards, which should be in connection with city and county boards, which should be in connection with the local officers; in no case, except where a mere statistician was needed, should a man fill such positions who was not gervaudt in path-anatomy, and full of the spirit of original investigation.

The National Board of Health must be *reformative*, because the entire system of medical education by us is on the wrong basis. First, all our schools or institutions of education are the result of private effort, either connected with, or independent of any responsible institution of education. According to Mr. J. S. Billings, in "A Century of American Medicine," we had in 1876, *fifty-nine medical schools in active operation. I do not hesitate to say that at least fifty of the same are in no way suited to the demands of the times, and that no one of them is regulated by the State as it should be. In no State should there be more than one medical school, which should be under the control of the State Board of Health.* How that board should be elected will appear presently, yet we find in Kentucky four such schools, in Maryland three, in Massachusetts, "Gott sei Dank," only *one*, in New York seven, in Ohio, Ye Gods! six, in the District of Columbia, "worse and worser," three; the story is indeed sad. A very striking example of the absurd ignorance of our legislators on this very important subject is given by the State of New York, in reference to a collateral branch of medical education. It seems in this State, and probably every other, that any body of men can obtain a charter for organizing a school for medical education, under a general law for the organization of charitable institutions, *lunatic asylums*, and institutions for general education; under an older law, a specified sum of money must be raised, $50,000 I think, to legalize such an organization, but this proviso is nullified by the elasticity of the Act of Assembly of later date. In neither regulation do we find the State, that is our *representatives*, displaying any knowledge whatever of their responsibilities in this regard, nor do we find a single word restricting or regulating the *standard*

of education in institutions they so loosely charter. We do not find any Board of Investigation, the duty of which is to examine into the character and qualifications of the teachers in such an institution. We do not find the State equal to its duties, and guaranteeing to the people qualified men whom they can trust and rely upon in the days of trial and affliction. On the contrary, we find the State of New York chartering or allowing to reorganize—under what right an old charter can be taken up by an entirely new body of men the writer could never understand—a defunct institution under the title of the "New York Veterinary College," with authority to grant the title "Veterinary Surgeon" to its graduates. *We find such title given to a person after only six months' study: we find the wisdom of our solons, the responsibility of the State Fathers of the State of New York, exemplified in chartering an institution for teaching and giving certificates of qualification, with one of its leading men branded before the entire country as a swindler, as a liar, as a misrepresenter of every principle which renders the science and practice of medicine honorable.* For the proof of the truth of these assertions, see Veterinary Journal, London, vol. 7, pp. 210, 212, under the headings "Spurious Titles," "Borrowed Plumes;" see further the numerous articles in the *Turf, Field and Farm*, New York, for the last six months with reference to the same matter; see further, *Hospital Gazette*, New York, March 15, 1878, article entitled "New York College of Veterinary Surgeons," p. 128, and read the evidence of the disgraceful ignorance with which we charter or incorporate institutions for medical education in the United States of America. It may be said by other ignorant persons, that that is only in reference to an institution for the education of "horse doctors," to which we answer, that under existing circumstances the same is equally possible in reference to institutions for educating "human doctors." As to the usual slur with reference to "horse doctors," we personally throw the gauntlet in the competitive lists of the medical profession in the United States, that we will do as good work, as scientific work, as original work, as the very best of them or die in the attempt, and that we have an education second to none of them, considering the length of time which we have

studied. We have endeavored to show that the work of the National Board of Health must be *reformative*, and we have endeavored to show where the reform must begin. We cannot have such men as are absolutely indispensible to our needs, under our present system of education in our medical schools. The work of reform cannot be done in a day—it will take years; but the first mighty step toward progress must be a National Board of Health and State Boards in every State; for that we have men enough. The next necessary step is to have the National Board, or delegates from each State Board, fix one standard of medical examination for the medical schools of the entire land, so that the people in every State may feel sure of having men of at least something approximating a substantial education. These regulations should be most earnestly recommended by the State Boards to the Legislatures of their respective States, and the entire medical profession in each State should, by active discussion and advocacy in the daily papers, educate the people up to this absolutely necessary standpoint.

The State Boards of Health should not be appointed by the Governor of each State, but by election by the medical society of each State, until such a time as in each State, an organized body of highly educated medical officers is found, when the members of the State Boards should be elected from the same, by the same, and hold *office* until sixty years old, if well and able bodied, and should be handsomely paid. Any member of the State Board found unqualified, should be dismissed by the vote of the majority of the Board. The plan now offered for the naming of the National Board is good enough, but in the future the same should be elected by delegates from the State Boards, and the numbers of the National Board should be arranged according to certain, to be yet constituted, electoral districts; for instance, while each New England State should send a delegate to elect a member of the National Board, the entire New England States should have but one member in the same; the Pacific Coast one, and the West and Middle States divided up correspondingly. These positions must not be political, and the holders must be named until sixty years old, or to be retired on pensions on becoming used up by work

before that period. In future the army and navy should attend their own business, or form a separate branch. These offices should be eminently civil, and the point of ambition to stimulate our best young men. We have said above that the State Board of Health should constitute the Examining Medical Board in each State, and that the standard medical examination must be the same in each State, and we intended also to have said that the period of complete study must extend over four years in the schools. All schools in any State, not able to compete with these terms, should be closed by law within a certain time, and the State Legislatures of each State having more than one school should take measures for centralizing the education in one, letting the positions for teachers *be competitive* before a committee of medical men for the time named by the Governor, or before the Board of Health, where such exists, or before a committee, named by the State Medical Association at the request of the Governor. When this is done, the State should step in and take means to pay each teacher at least $5,000 per year, and each first assistant $3,000, and the tuition should be *free* to each student having a fixed preparatory education, which should also be as near the same as possible in each State; but we would not have the education absolutely *free;* we would rather see it fixed at a certain price per year, say $100, and the amount paid in for the four years returned to those students coming out successively at the end of the same. With reference to the present funds, they could still be used as designated by the donors, but one use at least should be, offering study in Europe for at least two years, as a prize to a certain number of students from each graduating class, the same to be elected by vote of the Teach-collegium, with especial reference to minds capable of original scientific work. In each State the certificate of examination should be given by the State Board of Health, and a record kept of the name, age, etc., of each graduate. On removal to another State, each practitioner should receive from the Secretary of his respective State Board an appropriate certificate of date of graduation, duration of practice, and the same should be filed with the Secretary of the State Board of the State into which said person had moved, before being

permitted to practice. Foreigners and Americans educated abroad should be compelled to file with the Secretary of the State Board of Health an attested copy of their certificate of graduation, on which, on the approval of the State Board, they should receive a certificate of permission to practice; but if the foreign institution was not such as to guarantee the quality of the education received by said person, such should be by law required to pass the American National examination or to study in the school of said State until able to pass such, before being allowed to practice. The names of all such as will graduate, and the names and addresses of all "official mediciners" should be published in a State organ for public health and forensic medicine to be given out by the Board of Health and Medical School Faculty in each State. The practice of medicine by non-qualified men under the publicly advertised name of "Doctor or Dr.," should be punished by not less than five years imprisonment and hard labor and $500 fine; for we look upon such men as little better than chronic murderers. We cannot prevent the practice, but we must prevent the misrepresentation.

It is hereby necessary to speak of the *incitive work* of a National Board of Health, after all we have said, yet aside from the original work to be expected from its members in cases of necessity, will be as said, the stimulating desire to become a member of it; for the position should be one of the highest honor; and further, it will be the duty of the Board to offer prizes of no mean amount for original researches with reference to specific diseases, and in this way be of much moral benefit to the country. In one word, the duty of the Board is mainly to our mind, to stimulate and regulate the entire hygienic system of the country, and this includes the entire educational and practical system of medicine.

Much stress is laid by most people on the value of statistics with reference to infectious invasions; we think such collections have but very little value; whether ten men or ten thousand die of a specific invasion is to me scientifically speaking—"ganz egal," that is, the same thing; for ourself the point is, we have a course of disease existing in certain atmospheric, telluric or climatic conditions by which we are surrounded, and our work

must be untiring until we find the *raison d' etre*, and, if possible, means to prevent the same; it should never be forgotton that we may often finds means of prevention, when we cannot isolate as a specific element the true cause. See variola—"small-pox." These accumulative statistics seem to shock the people and help us to attain means for their study and prevention, but they are of little comparative value with reference to ontogenetic invasions, because of the very little attention which collateral circumstances and influences receive at such times, from otherwise careful and competent observers; hence it is that a Board of Health, with authority to detail one of its members or several thoroughly competent men to go to a named locality and study the genesis of a named invasion, and another party to study and experiment on its treatment, may do work of untold value to the nation, because in the one case the persons at work have nothing to do with deaths taking place around them, and in the other can bend all their energies to the treatment of the same; the one party to prevent the disease generating, the other to stop its course after having generated. In both cases the work would be organized, not spontaneous.

There is another form of statistics, the careful collection of which would send a thrill of horror over the human family, and it is from this form which we may in the distant future expect very valuable results; but to obtain them we need far better practitioners, much less unprejudiced thinkers, than we now have in the medical profession. *We allude to statistics with regard to the preventible diseases of life; the diseases due to ignorance, not only on the part of the diseased but of the practitioner as well; an ignorance of duty with reference to the latter, for the medical adviser who treats only is only fit for confinement among idiots. We allude to the diseases due to the ignorance of the people in the employment of empirics, and still further to the still more ignorant American craze, the use of those disgraces of our civilization, legalized patent life destroyers, discoveries of the devil and his agents—patent medicines.* Here is a crying evil to which the National Board of Health should give its urgent attention. In fact no medicines should be patented at all, nor should bottled

medicines be allowed to be sold without a register of their contents with the National Board of Health, and only at the order of a regular legalized practitioner. (They are generally stolen prescriptions which an intelligent practitioner gave for specific purposes and which unprincipled men generalize as "cure-alls."). The sale of patent nostrums to be taken internally should be regulated by law. But we will not allude further to this subject as it is our intention to devote a special paper to it in the not distant future.

As said, it is statistics in reference to the prevalence and cause of the every day diseases which we want, and not the occasional. *Phthisis consummation kills more individuals in ten years than any invasion of the present day is likely to do. What plays the chief role in the genesis of this accursed pest? Ignorance! Stupidity! Blindness! On whom rests the blame? Unhesitatingly we answer, the medical profession! No one has yet entered upon a crusade against this fell destroyer, which is spreading and dispersing its devastating germs over the nations of the world. No one writes for the people, that hereditariness plays a great genetic role with reference to the same.* We forget that the sins of the fathers are visited upon the children for generations. Who, of the medical profession lifts up his voice and tells the people, *consumptives dare not inter-marry. Aye! dare not marry!* Ye fools, who shall warn you of the wrath to come? The medical profession ever sets an example of their own incapacity, or else why so many of their members with consumptive wives and children? Why study medicine unless to think? Unless to see the truth? *Can you think, gentlemen?* We scarcely believe it Blind, blind! Education! Where have we heard the word? Have we dreamed that such a thing existed? Ignorance exists, *to think* the evidence of education is almost a myth. Perhaps it may be found among the lost arts. *What right have we to damn our children to a longer or shorter time in a living hell of misery and pain? The cure is before us, consumptives, descendents of consumptive families dare not intermarry.* We are not at all blind to the infectious nature of *tuberculosis*, as may be seen in the future, but that is another side of the question. *How do the apostolic standard-bearers de*

port themselves on this question? Have they entered an intelligent protest against this accursed ignorance? No! no! they out Herod Herod. For the gratification of their lustfulness, they are perfectly willing to kindle consumptive fires in the bodies of their wife and children. Ministers with worn out wives, and large families dying early deaths, are more the rule than the exception. The writer is no enemy of the church. She can be of immense benefit when she knows enough to attend to the soul of to-day and let the morrow take care of itself; "Sufficient unto the day is the evil thereof," said the noble Jesus. Morals! Morals! Yes, Church morals! Society morals! Who will be the Apostle of physiological morals? Syphilis is another kindred child to Phthisis, aye, plays a part in the genesis of the fell destroyer. Yet who absolutely forbids such people to marry? Marry! "Oh, yes" says the intelligent doctor, "perfectly cured, oh, yes;" and the child produced not only brands the medical adviser a liar, a stupid and irresponsible ignoramus, but publishes the father's "cured" (?) condition to the world. Verily the sins of the fathers are manifested in their children.

After we have gathered these numerical statistics, still another form of no secondary interest demands attention; it is not enough to know the number of deaths resulting over a country from a number of given diseases. We do absolutely nothing except to establish a percentage each year with such figures. To complete the work, it is necessary that all natural influences should be most carefully observed by competent observers. We must have accurate reports with reference to the stand of ground-water all over the country, and seek to accurately define the relations of the same to typhus and typhoid diseases; we must know the influences exerted on the outbreak and extension of diseases by the water courses and prevailing winds; we must know what diseases prevail in the valleys, and what do not prevail on the highlands; we must know the influences exerted on the diseases of people living on high and exposed table lands, as well as the inhabitants of wooded districts; we must know accurately the influence exerted by temperature changes, by dry and wet seasons; we must know the influences animals exert on man, and *vice versa*. And when all this

is collected, the National Board of Health—we think it will finally develop into a department—should give out once in every ten years, geographical maps of the extension of diseases in the United States, with tests, but such should not be limited to invasive diseases, but should embrace every disease, except induced, and it might be well to embrace them also, such as syphilis, in the same. We wish to say one word about the proposed pay, $5,000 per year. It is evident the work requires the ablest men the country can produce, men who could earn from $20,000 to $30,000 per year in practicing. It is an insult to offer such men $5,000 a year to give their entire energies to the people for their lives; $7,500 and retiring on full pension when sixty years old, or useless from overwork, is little enough, and only by such a course can we expect good men. The people do not want the positions filled by worn out millionaires for honor alone. Yes, we need a board of national hygiene, but let it not be composed of antiquated fungosities, but of men in the aggressive, not the defensive years of life. Let it be composed of men alive in the science of to-day, not buried in the dream of the past. The good time is now, is before us. "The good old days of yore," do not for us exist; they existed for the men *living*, not dying in their *perfection*. The *possible* is ever before us, not behind. It must be composed of *men* equal to the emergencies of our day and country, and blessed shall we be, if one now among them answers to the same.

In carefully considering the memorial in question, we were not surprised at observing an omission, which all things considered, is excusable, but which, nevertheless, neglects one of the most important assistants, aye, in many ways, the most important factor in reference to questions of national hygiene. We allude to the fact, that we find no veterinarian is thought necessary to such a Board. It certainly must be known to the estimable drafters of said memorial, that some of the weightiest prophylactic and hygienic questions of the day are entirely out of their line of work, can in fact only be rightly considered and investigated at the hands of scientifically educated veterinarii. One need but allude to the terribly fascinating interest, for the pathological experimentalist and ætiologist, attached to the question of "*Tuberculotic*

Infection" raised by the lamented Gerlach—the Virchow of veterinary medicine—to the very close relations existing between anthax and authracoid diseases of animal life; to the innumerable dangers of septic infection, to which we are exposed from untimely slaughtered flesh; to the immense losses which the nation suffers from the various animal epi and enzootics. One need but allude to the yet but little appreciated truth in pathology, that the more one knows in general, of the processes and phenomena of disease, the better can he judge in a special case. Comparative pathology is not yet truly developed, aye scarcely begun. *Numerous mistaken writers have spoken of veterinary pathology as comparative. We have veterinary and human pathology. The union of both, and comparison of the results of both forms of investigation is true comparative pathology, all authorities to the contrary.* The drafters of this memorial undoubtedly entirely overlooked this matter, yet we think they are mistaken. We are fully aware of the difficulties the nation would find, in searching for a man equal to the emergency. We are perfectly aware that if the duties of the other members of said Board are to be onorous in the extreme, those of the veterinarius will be such as to make every one who realizes them, tremble for the life and health of the man on whom such an honor is conferred. We will say at once, the man can be found, and a veterinarian at that. We will now say what that man must absolutely know and do, or history will pronounce him a failure. First, he must be a gentleman; further, he must be well educated in the rise and progress of medical art and science, and of the difficulties which have been overcome. He must be at home in the history of his own profession in every land, and he must be able to exert a healthy judgment over the stand of veterinary medicine in those lands. He must know why it is that his profession has been always in the back-ground, why in most lands it is still holding religiously on to the skirts of the last century. He must be an American in the true sense of the term. He must be impregnated with the scientific spirit of the day, and with fore-seeing ability suiting him to mould things for the future. He must be at home with the various forms of American life, and have power to mould these forms for

the good of the whole. He must be a gentleman of culture, a philosopher, as well as a mere technicalist. He must be acquainted with the entire veterinary police laws and systems of the world, and, if possible, have lived more or less in them. He must have an organisative ability of the highest stamp, for he has almost single handed to lay the foundation of a veterinary educational and police system, and woe betide him if he fails. *Woe betide the man, who in the face of the results of a "century of American medicine," in the face of the lessons it teaches, in the face of the results of the veterinary educational system of Britain, in the face of the emphatic testimony in favor of one or two national veterinary institutions of education as exemplified by France and Germany—woe unto the man, who, in the face of these testimonies, would advocate either private or State institutions for veterinary education. One standard of education, one diploma for the nation, one school, until the needs of the country absolutely demand two, when both should be under the same system. One grand veterinary educational investigatory, prophylactic, practical and police system is what the nation wants, and he who advocates any other form is not the friend of his country, is no true student of history, is no true scientist. We must have a man to fill this position whose work and ways testify to his ambition, to his willingness to count life, family, friends, as nothing, in his desire for the furtherance of his country and his profession. We must have a man with trustworthy testimonials of his ability for this mighty work. We must have a man thoroughly at home in veterinary pathological anatomy, and not ignorant of human pathology; yes, we should say, so well at home in the latter as not to fall into any of the "identical fallacies" so absurdly sought after by veterinary writers of the present day, who hope thereby to bolster up their profession. We must have a man in the flowery days of life, so that we may hope to see him live to place this grand national necessity on a solid, scientific and adamantine basis.* If we can find a man personally acquainted with the leading men of Europe, so much the better; we must have one able to read at least German and French, for it will be an absolute necessity to receive all the veterinary enactments of these lands. Germany has two veterinary

councellors upon her "Reichs Gesundheit-Amt," State Board of Health, and one at least is one of its most valuable members. Germany is about issuing a set of veterinary police laws for the entire nation, in the place of those now existing, which were issued by the respective governments. Veterinary medicine and police differ much from human; everything assumes a more *general form;* her laws must be more general, because the common danger is greater; animals infested by invasive diseases are easily subjects of transport, while the sick man gladly stays at home. The entire community has an interest in all matters pertaining to veterinary medicines, while in relation to human, it is a different interest, there is no comparison in this regard; veterinary medicine holds in its hands the keys to a large number of human diseases, and on the other side she holds at her command an immense part of the national wealth.

We have indicated that the Medical School of each State should be regulated by the State, the Examining Board to be the State Board of Health, which would also have at its disposal such institutions for the purpose of patho-ætiological experiment, conducted at their suggestion by the teachers, in which the advanced students would also participate. We would not certainly be less generous to our National Department of Hygiene, and so we propose, as we have been proposing and intend to keep on battling for, until we see its completion, that this National Board have an institution at its command, not only of the same kind, but one which is better by far adapted to perform their work, than a mere medical institution. Hence it is we propose: one National Institute for the study of veterinary and comparative pathology, for the education of men on whom the nation can rely in the study of all ætiological influences, for we believe, aye, we know, that the day will come that *Veterinarius* will be the most effective hygienic officer of the nation, when in a prophylactic point of view he will stand as far ahead of the Medicus, as the latter will be valued above him for a practical. We know of what we speak; we know of the immense advantages yet to be reaped from the exact study of comparative medicine; we know that from the nature of his profession, from the natural bias of

his mind, the cultivated veterinarius is the man on which the world will finally rely for its study of the telluric, atmospheric and climatic influences on disease-genesis. We know also that to-day the profession is not up to this point, but we are confident it will attain to it; but to do it, we must have, as said, a proper and well regulated institution for education. Hence it is that our National Health Department will eventually be an organized army of well educated men, able to combat successfully man's dread enemy—*Disease;* hence it is such a department cannot afford to despise veterinary medicine; hence it is we must have a veterinarius upon it, and a national veterinary institute controlled by the National Department of Hygiene, represented by the veterinarius, who in the, we hope, not too distant future, should be elected by the teachers of the said veterinary institute. The work of such an institute we have elsewhere discussed in papers which we hope will follow the present in this journal as well as receive notice from others.

BERLIN, PRUSSIA, Dec. 9, 1878.

EDITORIAL.

VETERINARY INSPECTORS.

Through these columns, attention has already been called to essential questions touching upon sanitary regulations in both the general and state governments, and while we are not over sanguine as to the probability of our suggestions being at this time acted upon, there can be no doubt as to the ultimate recognition of the importance of veterinary science in conjunction with this all.important subject; and sooner or later the veterinarian will find his knowledge in requisition by health boards that have not accomplished a satisfactory success, while ignoring the claims which our branch of the medical science justly makes in the interest of public health.

This question of establishing veterinary departments in all

boards of health is one of unusual importance to us at this juncture of our existence as a profession, struggling for recognition from a government that seems so apathetic in its appreciativeness of our merits, and it is with the hope that the opinions therein expressed may excite renewed interest and comment, that we publish in this number, from one of our co-laborators, a lengthy article on the organization of a Veterinary Sanitary Bureau.

The obstacles to the early accomplishment of such a success as the establishment of a bureau of this kind would be, are certainly patent to the most casual observer in our ranks who is at all acquainted with the deficient knowledge of public officers in matters pertaining to hygiene and sanitary laws; and in light of the recent experiences undergone by our professional brethren of European countries in the formation of similar institutions, we cannot conceal the grave doubts we have of an immediate realization of our hopes in this direction, for if the governments of those countries in which veterinary science is at its highest development, have for so long a time ignored its claims, how much less effective must be our importunities while we have yet to acknowledge the weakness of our infancy.

Lying in the seeming interspace between human and veterinary sanitary police, and linking the one to the other, is the office of *meat inspector*. When we consider that the principles of sanitary science which underlie all rules of health are alike applicable to man and beast, we cannot deny that the recognition of the importance of these principles must ever be dependent upon the individual understanding of the sanitarian, and that he will be most efficient in the performance of his duties who comprehends the most fully these laws, and readily recognizes the necessity for their employment.

It is this specially acquired intelligence which must ever pre-eminently adapt the veterinarian for the position of meat inspector, for no other can be so well fitted to detect the presence of disease in the animal intended for slaughter, or the evidences of its previous existence in the meat that is offered for sale.

It is in this position the services of the veterinary surgeon must be most potent for the preservation of human health, for

while our food supply continues to be so largely constituted of animal flesh, there exists the utmost necessity for the proper inspection of all such meats as may be offered for sale.

It is a notorious fact that where deficient inspection exists, the avarice of unprincipled dealers imposes upon the unsuspecting public, meats unfit for human food, and it was to arrest this insidious source of disease that European governments have established in their abbatoirs, slaughter-houses and meat-markets, inspectors who should at once prevent the slaughtering of unhealthy animals and the sale of diseased or spoiled meats.

To fully protect our people from the pernicious influences entailed by the consumption of flesh affected with acute inflammatory processes, infectious disease, or parasitic conditions, necessitates the employment of inspectors who possess greater qualifications than are found in the common police officers usually detailed for such duties; and, following in the footsteps of other countries, our government must eventually recognize the fact that the entire education of the veterinarian fits him to most fully compass this desirable immunity from surrounding danger, and his appointment to these official positions will be an appreciative acknowledgment by her of his unequalled importance.

VETERINARY COLLEGES.

TRANSLATED BY J. GERTH, STUDENT.

(*Continued from page* 436.)

ITALY.

Bologne. (Veterinary School.)

Milan. (High Royal School of Veterinary Medicine.) Director, Dr. L. Corvini; Professors: Dr. Johann Generali, Dr. Melchiar Guzzoni, Dr. Lanzilotti Buonsanti, Dr. Peter Pellogio, Dr. Heinrich Sertoli; Assistants: Dr. R. Demetrio, Dr. Achilles Ironchera, Jacob Bertoni, Dr. T. Negrini.

Naples. (Veterinary School.)

Pisa. (Veterinary School.)

Turin. (High Royal School of Veterinary Medicine.) Director, Cav. Dom Vallada; Professors: Cav. T. Chiapparo, Cav. Robert Bassi, Cav. Lorenz Brusaco, Cav. Ed. Perroncito, Thomas Longo; Assistants: Julius Demorchi, Anton Venuta, Jacob Pairone, Michael Gay.

AUSTRIA.

Vienna. (Royal Military Veterinary Institute.) Faculty: Director, Prof. Dr. Moritz Roell; Professors: Dr. Franz Mueller, Dr. Andreas Bruckmueller, Dr. August Armbrecht, Dr. Leop. Forster, Dr. Franz Zahn; Adjunct Professors: Maximilian von Baumgarten, Raimund Korzil; Docents: Franz Konhaeuser, Dr. Josef Bayer, Dr. Johann Coskor; Assistants: Dr. Justinian Ritt. von Froschauer, Josef Stengel, Franz Wildner; Teacher of Shoeing, Ferdinand Schueller; Inspecting Veterinarian, Ferdinand Wicher; Secretary, Ludwig Gellnick.

This Institute was founded in 1777, and opened in 1778. In 1812 it consolidated with the University of Vienna.

HUNGARY.

Budapest. (Royal Veterinary Institute.) Faculty: Director, Prof. Tormay Adalbert; Professors: Dr. Ritter Wilhelm von Zlamal, Alois v. Izabo, Dr. Franz v. Varga, Dr. Ludwig Tanhoffer, Dr. Cako Koloman; Prosector, Adalbert Nadasky: Teacher of Shoeing, Franz Kurtz.

RUSSIA.

Charkow. (Veterinary College.)

Dorpat. (Veterinary College.) Faculty: Director, Prof. Dr. Ritter F. Unterberger; Professors: Dr. A. Rosenberg, Ritter Mag. Eugen Semmer, C. Ranpach; Docents: Mag. Waldemar Guttmann, Dr. Waldemar v. Knievim, Dr. Klever, Ritter Mag. Julius, P. v. Wiskowaton; Prosector, Mag. A. Semmer; Teacher of Shoeing, C. Arndt, Sr.; Assistant Teacher of Shoeing, C. Arndt, Jr.; Assistant Prosector, C. Arndt (II.); Assistants: Paul Aley, Mag. Christof Hellmann.

Smaller branches are lectured upon by the Professors, Dr.

Helming, Dr. Russow, Dr. Flor, Dr. L. Stieda, and by the Assistant Mag. Lagorio, of the Dorpat University.

This college was founded in 1848, and reorganized in 1873, at which period it received the rank of a university.

Sixty-one students are attending lectures at present.

The course of study lasts four years.

Kasan. (Veterinary College.) Faculty: Director, Prof. P. Seifmann; Professors: A. Strschedsinsky, J. Lange, K. Blumberg; Docents: E. Lehmann, J. Narvalichin, P. Svislotzky, Prof. J. Dogrel; Teacher of Shoeing, K. Kalming; Prosector, A. Grischin; Clinical Assistants: C. Holzmann, A. Roschdestwensky.

St. Petersburg. (Veterinary Department of the Academy of Medicine and Surgery.)

Warshau. (Veterinary College.)

SWEDEN AND NORWAY.

Skara. (Veterinary College.) Faculty: Director, N. E. Forssell; Professors: G. V. Hofling, C. R. Waller; Adjunct Professors: J. I. Ch. Anzelin, C. A. Wiegandt.

This college was founded by Prof. Peter Hernguist in 1774.

Stockholm. (Veterinary College.) Faculty: Professors H. Kinberg, Ernst Morell, G. Sjostedt, C. Linguist; Lecturer, C. Ericson.

This college was founded by an edict of Government in 1820.

SWITZERLAND.

Berne. (Veterinary College.) Faculty: Director, Prof. von Niederhaeusern; Professors: Buguion, Berdey, Guillebeau, Hartmann. The Professors, Dr. Arly, Schwarzenbach, Fischer, Forster and Bachmann, of the High School, lecture at the College.

This College was founded in 1805.

Zurich. (Veterinary College.) Faculty: Director, Prof. R. Zangger; Professors: Dr. Balthasar Luchsinger and Dr. Eberth; Docent, Dr. Keller; Assistants: Meier, Hirzel and Tschokke.

In Switzerland three members of the profession are at the head of the Veterinary Sanitary Police.

SPAIN.

Spain has four Veterinary Colleges, one in *Zaragoza*, one in *Cordova*, another in *Leon*, and the fourth in *Madrid*. The latter is the most eminent. Its director is Dr. José Maria Munnoz. In the capital of Spain there is but one good veterinary journal published—"La Veterineria Espannola"—edited by D. Leoncio F. Gallego in a very creditable manner. In this country veterinary science is quite undeveloped. This is principally due to its being almost entirely neglected by the government and people. The public, when animals are sick, seldom consult a qualified man, but most frequently employ an empiric. As the government is not inclined to do anything for the schools and teachers, the colleges are but poorly attended. Furthermore, every student knows that he can obtain but little practice, and that upon horse-shoeing he must depend for a living.

TURKEY.

Constantinople. (Veterinary College.)

CANADA.*

Montreal. (Veterinary College.) Faculty: Prof. D. Mc.-Eachran, F.R.C.V.S., Principal; Professors: J. W. Dawson, LL.D., R. Craik, M.D.. W. Osler, M.D., O. Bruneau, V.S.; Assistant, C. C. Lyford, V.S.

Toronto. (Ontario Veterinary College.) Faculty: Prof. A. Smith, V.S., Principal; J. Thorburn, M.D., M. Barret, M.D., H. H. Croft, D.C.L., Dr. Ellis, George Buckland, Esq.; Assistant, J. T. Duncan, V.S.

* As the German author of the general notice of the Veterinary Colleges of the world has omitted the mention of the two following institutions, we have felt it our duty to add them to this translation, in full justice to these excellent schools.—[EDITOR.]

REPORTS OF CASES.

FRACTURE OF THE FIRST PHALANX.

By W. G. Schmidt, D.V.S.

The two cases reported below were quite interesting to me, and believing they may prove so to some of the readers of the Review, I beg to report them:

Case No. 1.—On the 23d of May last I was called at 1 P. M., to see a grey gelding, the property of Mr. Peter Scholl, which had been injured at the corner of Market and Broad Streets, by the passing of a wagon over the fetlock articulation. I found the animal standing on three legs, with the left fore extremity raised from the ground, and on examination, found great pain on pressure, and by manipulation obtained a distinct cepitus; diagnosis, oblique fracture of the first phalanx. Being unable to procure an ambulance, and the animal being old, I advised the owner to have it destroyed, which I believe was done.

Case No. 2.—On August 24th I was called to see a grey mare seven years old, owned by Mr. Fountain, on South Orange Avenue, which had been injured on the previous day. History—while being driven before a cart, the animal had stumbled, fallen, and the wheel of the cart had passed over the left hind leg at the fetlock. I found the animal standing in the barn yard, unable to put the injured extremity to the ground. On pressing the injured part, the patient suffered great pain, and by manipulating I obtained crepitation, and made a diagnosis of fracture of the os suffraginis.

I had the patient removed to the barn and put in slings, and after enveloping the part in oakum, applied a plaster-of-paris bandage in the usual way. On visiting my patient on the 14th of September, I found that the dressing had been slightly displaced, and partly removed it, at once reapplying it, the process of union apparently going on satisfactorily.

On the 28th of September, as the owner was averse to incurring further expense, unless there was a possibility of reunion taking

place, I removed the bandage, and on examination found that the healing process had made considerable progress, and again dressed the leg with plaster-of-paris. The patient had now begun to bear a little weight upon the injured leg.

On October 12th I removed the dressing, had the animal backed out of the stall, and walked up and down, locomotion being apparently perfect, but as a precautionary measure, she was kept in slings for another week, when she was put to daily exercise, the only indication remaining of the severe injury she had received being a slight thickening of the fetlock.

WM. G. SCHMIDT, D.V.S.

Newark, N. J.

ENDOCARDITIS AND RUPTURED STOMACH.

BY THEO. S. VERY.

A bay horse 18 years old had been driven carefully about nine miles, and was properly cared for and put in his stall about 12 o'clock noon. Shortly afterward he was noticed to be uneasy, the owner was notified, and I was sent for. He had been ailing about two hours when I arrived at the stable, and the stable keeper had given him a dose of gin and ginger and hot water. I was told he had laid down and got up several times, had urinated freely once or twice and passed considerable manure, but had not been down for an hour. The symptoms presented were peculiar, and as nearly as I can describe them as follows:

Three o'clock.—He stood in a wide stall, was covered with two long blankets, his head was quite erect, and his respiration, which could be heard quite a distance off owing to the vibration of his nostrils during expiration, was just 100 a minute. He was wet from his head to his feet with perspiration; his legs were uncommonly cold even above the knees and hocks; his pulse was quite indistinct and irregular; the oblique abdominal muscles were tense, but the illiac spaces were not distended, and he showed no tympanitis during his sickness. The visible membranes were of a natural color. While I was making the examination he got into

position and passed about a teacupfull of urine. I discovered the indications for treatment to consist of the administration of diffusible stimulants and opiates, and I gave alcohol ℥ ii, tinct opii ℥ i, in a pint of water, and repeated it at intervals of an half hour until five o'clock. Woolens wrung out in hot water were applied over the lumbar region, and the application renewed every twenty minutes.

Four o'clock.—The respiration remained about the same, except at intervals, when the noise would cease, during which he seemed easier. He had no pulse; all the other symptoms about the same. At times his head and ears were quite erect, at others depressed, with his nose almost touching the floor. The inclination to urinate attracted my attention as a prominent symptom, but I thought then as now, that he endeavored to urinate simply from excitement. He had not laid down but had made several attempts, going down on his knees and after remaining in that position for half a minute or so, rising again.

Five o'clock.—He laid down carefully and remained with his legs all under him, making no attempt to roll or stretch out for a period of about 15 minutes. When he arose, he got up behind first, like a cow. He was apparently somewhat affected by the opium, but remained pulseless and cold as before. There was less excitability, but no weakness. Again at 5½ o'clock he laid down carefully as before, stretched his forward legs out in front of him, got partly up on his haunches, and then lowered himself down again, making a heaving motion, as if to vomit. This he repeated several times, but did not vomit; neither at any time was there any eructation of gas. I had not been in a hurry about making a diagnosis, because in many respects it looked to me to be a very unusual case. At first I feared some trouble with the heart, the exact nature of which I could not discover. Later I suspected ruptured stomach, and made this diagnosis more positively than I had the other. From the first it was easy to see that his was a hopeless case, but the vitality exhibited by the animal was unusual in my experience.

I had predicted his death to occur by 6 o'clock, but he lived until 7:30; then he fell down on the right side, turned his head

to the left, the incisor teeth bore heavily on the chest in the region of the heart; his respiration was labored, the cervical muscles grew lax, and thus he continued for perhaps ten minutes. Finally he stretched his nose out to the greatest limit, struggled once or twice, and was dead. The post mortem made eighteen hours after death revealed no disease of other organs than the heart and stomach.

The former looked hypertrophied, but I did not weigh it. Both ventricles contained large amounts of clotted blood. When washed, the endocardium of both ventricles was striped as if painted, with bands of ecchymosis as wide as one of the fingers, from above downward, the spaces between being of a natural color.

The valves were also blackened. Pericardium was apparently free from traces of disease.

The peritoneal covering of the stomach was torn in a direction legnthwise with the stomach for about fourteen inches. There was an aperture through the muscular coats of the stomach as large as a silver dollar, midway between the greater and lesser curvatures, and about equally distant from the orifices.

DEVELOPMENT AND PRESENT STAND OF MICROSCOPIE IN GERMANY.

BY A LADY FRIEND OF THE "REVIEW."

(*Continued from page* 227.)

Up to the present time most of the improvements in the compound microscope had been made in foreign lands, and it was owing to their introduction into Germany that the German microscope has attained its present excellence. The most considerable improvement in the compound microscope was made by Hertel in the eighteenth century. He introduced reflected light through a mirror, and changed the microscope which up to this time had been horizontal, into a vertical one.

It is a matter of surprise that twenty years should pass before these excellent improvements should come into general use. Hertel's microscope was better than any that had preceded it in

its entire mechanical arrangement; superior indeed to many that were made later. Tube movement, exact and easy; an excellent and convenient object table; a moveable plane mirror; a contrivance for opaque illumination, after the method of Lieberkuhn, and an adjustable, plain micrometer. These are the characteristics of its mechanism.

Cuff improved the compound microscope still further. In its form it was similar to that in use at the present day. From this period on, the number of microscope-makers increased. The microscope stative was also made in many different forms. We will only mention Steiner von Gleichen and Benjamin Martin, who, with others, made the first pocket microscope and the first so-called "universal microscope." Ring and Veunebruck in Berlin, Rheinthaler in Leipsic, and Burucker in Nürnberg, all imitated the Cuff microscope in a greater or less degree. In the year 1770 Brander of Augsburg made himself famous through his microscope. One of his instruments resembles in an extraordinary manner the Martin pocket microscope, the other is an imitation of the Cuff instruments. Brander first introduced a contrivance in the form of a horse-shoe, over the object table, which served to fasten the objects firmly on the table, being used in the place of the object holder with the spiral spring, which, with some modifications, is in use at the present day. Brander declared that his instruments magnified one hundred and twenty times, with a visual distance of eight inches.

In the last part of the eighteenth century the improvement in the optical portion of the compound microscope was very small.

In 1672 Sturm attempted to construct the objective out of two lenses. No one followed his example. Instead of seeking to perfect the objective, every microscope maker sought to overcome the defects of the compound microscope by perfecting the ocular.

In the place of two glasses, three, four or five were used for the ocular. Instead of bi-convex lenses, plain convex. The distance and inclination of these lenses was varied in every possible manner. Dellebarre sought to make the microscope acromatic by the use of bi-convex lenses, made from flint and crown glass. None of these efforts accomplished the desired results. A more

extensive field of vision was obtained, but the optical power of the microscope remained the same, still, lenses of greater magnitude could thereby be used in the objectives. In Germany, in the last half of the eighteenth century, microscope makers distinguished themselves by developing and perfecting the compound microscope. We cannot, however, describe the improvements here.

In 1772 Samuel Gottlieb Hoffmann, of Hanover, made microscopes which, according to Gœze, consisted of six objectives, by means of which twelve different results could be obtained, the strongest of which magnified three hundred and seventy diametres. Some years after Johann Heinrich Tiedemann constructed an objective, whose focal distance was from 2-2 millimetre. The microscope had a moveable table, worked by two screws. The adaptation was effected by means of a spring. Tiedemann's microscope was considered by Bescke the best instrument at that time existing, and was very highly prized. The bottom of the box in which the microscope was kept was used as the base of the microscope. In Germany, at the end of the past century and the beginning of the present, the following microscope makers are worthy of mention: Wagener, Elkner, Junker, and Wickert. The last two mentioned endeavored to make cheap microscopes without at the same time destroying their value and usefulness. Through these four gentlemen already mentioned the microscope was greatly improved. It is a fact worthy of mention that at this time as well as later in Nürnberg, in most manufactories the compound microscope was constructed of wood and pasteboard. In the beginning of this century the dioptric microscope, although greatly improved in its mechanism, was still in the most deplorable state of mediocrity. The simple microscope, with all its disadvantages, was used for scientific investigations. The compound microscope was looked upon simply as a plaything, and by Dilletanti it was so regarded.

We have yet to mention still another kind of microscope, called the catadioptric instrument, which was intended to remedy the already mentioned defects of the compound dioptric microscope. We shall not, however, mention these instruments further, as they could not take the place of the dioptric microscope. The

sun microscope was discovered about the year 1646 by Kirschner, in the earliest period of microscopy. A half century later it was universally known under the name of the camera obscura microscope. In the beginning of the eighteenth century Fahrenheit, who was born in Danzig, made one, which Lieberkuhn afterwards imitated. In the middle of this century the sun microscope was used generally to make drawings of microscopical objects.

G. F. Brander, Von Gleichen, and Buruchcr added some special mechanical contrivances. Euler improved the sun microscope to a great degree. Von Haeseler carried these improvements into actual practice. Still the sun microscope remained in the same unperfected state comparatively with the others.

III.

If we examine once more the progress of the development made in the microscope in the first period of the history of microscopy, we shall obtain without difficulty a general idea of the condition of the microscope in the last period. The microscope, in spite of all the progress made in its construction, the importance of which we do not for a moment undervalue, still remained a very imperfect instrument. For this reason microscopy could not reach any great degree of development.

Frey, in his "Hand-book of Histology," declares that Leewenhock in his work, neither sought out a scientific principle nor method. His work is rather a revelation of remarkable and extraordinary objects which the naked eye imperfectly denned—not a correct scientific result. Frey characterises truly the micrographical work of the early history of microscopy as possessing no real scientific value, although of much significance on account of single histological details evolved. In them the combination of the units to a scientific whole was utterly absent.

The superior work accomplished from 1600 to 1811 was isolated, and without any connection. Skilful hands were necessary to bring into being the true scientific microscopy.

Frey's assertion that Leewenhock's researches were discoveries of strange and remarkable things or objects. Leewenhock and all those that followed him up to the year 1811 were animated to

work in the true interest of science, it is true, and endeavored to carry on their work in a true scientific manner, but were perhaps sometimes led away by the desire to satisfy the vulgar curiosity of their time. It was not their fault that they did not bring their investigations to the development of a scientific microscopic anatomy—that is, to make microscopy an independent scientific discipline. It was the result of the imperfect instruments with which they had to work.

We shall next examine the development and progress made in the apparatus for microscopical work. We shall first consider the appliance for holding the object. It filled an ever increasing demand for a medium through which observation of microscopical objects was made easy and convenient. In order to estimate correctly the development of microscopy, we must examine the means for preserving the prépérat or the preparation, which are even so worthy of mention. We shall all notice the manner of preserving the preparation.

According to Huygens, small plates made of mica were almost exclusively used as object holders. In general the objects were fixed on with wax or turpentine. Sometimes they were pressed between two small mica plates. These were afterwards replaced by a concave glass tablet having peculiar contrivances, by means of which they could be firmly attached to the microscope. Liquids were examined in glass tubes; living animals in a vessel which consisted of a concave and plane glass. The so-called water insect vessel was used by Leewenhock, and was later very much changed and improved.

Many microscopes, in the place of the object table, had forceps by which the objects were held fast. This arrangement was used in part until the second period of microscopy. Object holders with concave cavities were used at an early date. It is very interesting to relate that Leewenhock had an apparatus by which he examined the circulation of blood in animals.

In 1718 a very curious contrivance was brought into use for observing living fish. The subject was placed upon the object table; a lead plate was laid upon the body in such a manner that it was incapable of moving any portion of the body except the

tail. From this apparatus the brass fish-pan was made which was in use for so long a period. The first apparatus for studying the circulation of blood in the frog was constructed in the year 1744. For observation it was combined with the sun microscope, and consisted of a frame upon which the animals were fastened with strings and pins.

In 1782 Goeze discovered the compressium. He constructed two such instruments—one made of brass and a hollow capsule, with a glass bottom, within a moveable glass plate, which was fastened near the end, and capable of being extended by means of a spring.

To examine the different kinds of object holders would carry too far. We will, however, simply remark here, that as early as 1715 microscopes were made which had a rectilineal and revolving movement of the object by means of mechanical appliances. The appliances of Keppler were used to measure the object. The observer looked in the microscope with one eye, with the other upon a given scale or measure. This method was very favorable when the magnifying power of the microscope was known. Although this was not always the case, still it was a much better method than that of Leewenhock, who measured objects by comparing them with other known bodies or objects—such as a hair, a grain of sand, etc. In 1710 Prof. Theodor Ballhasar first recommended the use of the micrometer. The first micrometer, together with the seriros and Nitz micrometer, were made by Hertel. Several years later, however, they were brought into use by Benjamin Martin. In 1769 Brander made micrometers which were infinitely better in their division than those of Hertel.

In examining the instruments for preparing the objects in use in the first period of microscopy, we shall observe that objects were examined in their natural condition. Small insects were stuck on pins, or placed between two mica plates, or held fast by pincers; these were the only objects examined, at most the wings, the feelers, or the feet. Jan. Schwammerdam made the first anatomical section. Although he was from the Netherlands, we shall look more closely at his method. He used the section table made by Samuel Mussehenbrock, a small scalpel, a delicate pair

of scissors, a lancet, a needle of a lancet shape, which was so fine that it could not be cut without the aid of a magnifying glass. It is interesting to know that Schwammerdam was the discoverer of the injection process. Although he never used forceps Schwammerdam dissected the animals after he had killed them in water.

The first forceps were made by Massenbrock after the death of Schwammerdam. It would be utterly impossible here to follow the development of each single microscope. It is enough to say that they resembled essentially in form those used at the present day, but they differed in manifold ways. The oldest instrument of this kind is in the museum at Utrecht. It is described by Harting as follows: "It is a hollow cylinder of brass, in which a small arm can be introduced; underneath is a screw for regulating the length, either longer or shorter. Above are two rims, of a swallow-tail shape, for three plates of brass with springs of one-third to six milimeter in diameter. If the part worked by the screw projected, the surface of the small plate served as a conductor for the measurer." Adams made in 1770 a construction of this kind from an improved mikrotom.

The preservation of microscopical objects is a custom as old as the microscope itself. Plates made of mica and small glass tablets were used, between which the larger insects or animals in a dry state were placed, without any preparation whatever. Soon the delicate portions of animal life were attempted. B. Hermann Boerhaave says in his biography of Schwammerdam, that the latter (Schwammerdam) cleansed the animals, then inflated them with air, and dried them. In this manner they retained their form, and could be exhibited. Sometimes he pricked the little animals with a thin needle, squeezed out all moisture, inflated them, placed them in a small glass tube and dried them in the shade, smeared them with lard oil, in which he had mixed a little rosin. In this manner he could keep the specimens many years in their natural form. The first microscopical collection was made by Leewenhock. It is not known how the animals or insects were prepared. With great certainty we can affirm that they were in a dry state. P. Hertig, whose works we have so often mentioned, gives us a

list of Leewenhock's specimens as it appeared in the auction catalogue after his death. The catalogue embraces thirty-seven animal, nineteen vegetable, and many mineral objects. Although our limited space makes it almost impossible to mention them, yet to our readers it will be interesting, as we can thereby obtain a most excellent opportunity to mark the progress microscopy has made.

The successors of Schwammerdam and Leewenhock preserved their specimens in a dry state until within the second period of the history of the microscope. In observing the progress of the development of the microscope until the year 1811, we find that real scientific microscopy did not exist in the first period of its history. We will, however, examine the auxiliaries and additional apparatus as well as the various methods for preserving the microscopical specimens.

Before we examine further the progress of the development of microscopy in Germany, we shall first describe the term microscopy as we understand it. Microscopy is the scientific theory, the making and use of the microscope, as well as by the help of these instruments to construct finer appliances which are adapted to the examination of scientific, microscopical, and natural objects. General microscopy is the theory of the manufacture and use of the microscope. The process of development we have already described in the first period of the history of microscopy. Special microscopy is the theory of the finer construction of natural scientific objects. The term micrography has also been used, and with reason. Microscopy has, however, often been employed as a general term for both branches, although we decided long since to use the terms in their true scientific sense. We will close this treatment of the subject, as we shall give the definitions at the end of the work. We shall make use of the special terms in order to avoid all mistakes.

In the first period of its history microscopy was of very little importance, on account of the undeveloped state of the microscope. We would observe that the development of the microscope is closely allied to the development in micrography. Considerable progress in the development of special microscopy can

only be attained through improvement in the existing microscope. The improvements were so imperfect that improvements in their onstruction were imperatively necessary. The operator himself could alone realize the great need, and through perpetual complaint and fault-finding the microscope makers were induced to make improvements. The optical power was so imperfect the operators themselves often made important improvements. We recall at present Leewenhock, Hook, Euler von Gleichen.

OBITUARY.

The alumni of the American Veterinary College are mourning the loss of one of their members, the first they have had to lament.

ANTHONY WOLF,

of Philadelphia, after an illness of three days, died on Sunday, the 18th of January, from pleuro-pneumonia.

Occupant of the scholarship for the state of Pennsylvania Mr. Wolf was a young, hard working and intelligent man, liked by every one who knew him; and by his death, to-day regretted by his comrades, the veterinary profession has lost from its ranks one who would have been a credit and a honor to it

EXCHANGES AND JOURNALS.

HOME EXCHANGES.—American Bookseller, Scientific American, Hospital Gazette, Medical Record, Country Gentleman, Turf, Field and Farm, New York Rural, American Agriculturist, Prairie Farmer, Practical Farmer, Ohio Farmer, Scientific Farmer, Maine Farmer, National Live Stock Journal, Western Sportsman and Live Stock Journal.

FOREIGN EXCHANGES.—Journal de l'Agriculture, Veterinarian, Veterinary Journal, Recueil de Medecine Veterinaire, Archives Veterinaires, Mouvement Medical Clinica Veteirnaria, Revue fur Thierheilkunde und Thierzucht, Archiv fur Wissurschaftliche und practishe Thierheilkunde, Band IV, 6 Heft, Bulletin de la Société Centrale de Medicine Veternaire.

NEWSPAPER.—Western Sportsman, Western Agriculturist, Our Dumb Animals, Vermont Record, The Ploughman, The Leader, New England Farmer, VerFarm Journal, Central Union Agriculturist, The Weekly Mail,

CATALOGUES.—Physician and Pharmacist Record, Albany Medical College Introductory Lecture, Scientific American Catalogue.

COMMUNICATIONS RECEIVED.

F. S. Billings, V.S., A. A. Holcombe, D.V.S., R. Wood. V.S., W. J. Coates, D.V.S., G. P. Penniman, D.V.S., F. S. Winchester, D.V.S., Nemo, Truth, J. Gerth, Jr.